

## Appl. No. 09/912,616

37. (Amended) An alloy comprising a randomized microstructure and a t xture with a substantially uniform grain size; said alloy being produced from a cast material by a method comprising the steps of:

defining equal channel angular extrusion/routes for defining predetermined shear planes and crystallographic directions in the allby;

selecting at least one route from the defined routes for plastically deforming the alloy during equal channel angular extrusion; and

subjecting the alloy to a predetermine number of passes through the selected at least one route, the alloy comprising a substantial absence of precipitates.

38. (Amended) An alloy comprising a strong texture; said alloy being produced from a cast material by a method comprising the steps of:

defining equal channel angular extrusion routes for defining predetermined shear planes and crystallographic directions in the alloy;

selecting at least one route from the defined routes for plastically deforming the alloy during equal channel angular extrusion; and

subjecting the alloy to a predefermined number of passes through the selected at least one route, the alloy comprising uniformly distributed second-phase precipitates.

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39. (Amended) An alloy comprising substantially random textures; said alloy being produced by a method comprising the steps of:

defining equal channel angular extrusion routes for defining predetermined shear planes and crystallographic directions in the alloy;

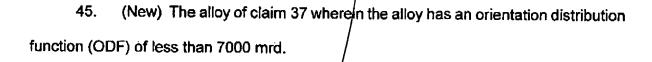
selecting at least one route from the defined routes for plastically deforming the alloy during equal channel angular extrusion; and

subjecting the alloy to a predetermined number of passes through the selected at least one route; the alloy comprising a fine grain size of less than about 1 micron.

40. (New) The alloy of claim 39 wherein the alloy comprises at least one of Al, Cu, Ta, Ni, Mo, Ag, Au, and Pt.

- 41. (New) The alloy of claim 39 wherein the predetermined number of passes comprises at least 3 passes.
- 42. (New) The alloy of claim 39 wherein the alloy has an orientation distribution function (ODF) of less than 7000 mrd.
- 43. (New) The alloy of claim 39 comprising uniformly distributed fine precipitates having an average diameter of less than 0.5 microns
- 44. (New) The alloy of claim 37 wherein the alloy comprises at least one of Al, Cu, Ta, Ni, Mo, Ag, Au, and Pt.

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- 46. (New) The alloy of claim 37 wherein the substantially uniform grain size is less than about 1 micron.
- 47. (New) The alloy of claim 37 wherein grains of substantially uniform size comprised by the alloy are equiaxed grains.
- 48. (New) The alloy of claim/38 wherein the uniformly distributed second-phase precipitates have a precipitate size of less than about 1 micron.
- 49. (New) The alloy of claim 38 wherein the uniformly distributed second-phase precipitates have an average precipitate diameter of less than 0.5 microns.
- 50. (New) The alloy of claim 38 wherein the uniformly distributed second-phase precipitates have an average precipitate diameter of less than 0.1 microns.
- 51. (New) The alloy of claim 38 wherein the predetermined number of passes comprises from 1 to 4 passes.

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- 52. (New) The alloy of claim 38 wherein the alloy comprises at least one of Al, Cu, Ta, Ni, Mo, Ag, Au, and Pt.
- 53. (New) The alloy of claim 38 wherein the alloy has an orientation distribution function (ODF) of between 10,000 mrd and 20,000 mrd.
- 54. (New) The alloy of claim 38 wherein the alloy has an orientation distribution function (ODF) of greater than or equal to 20,000 mrd.

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